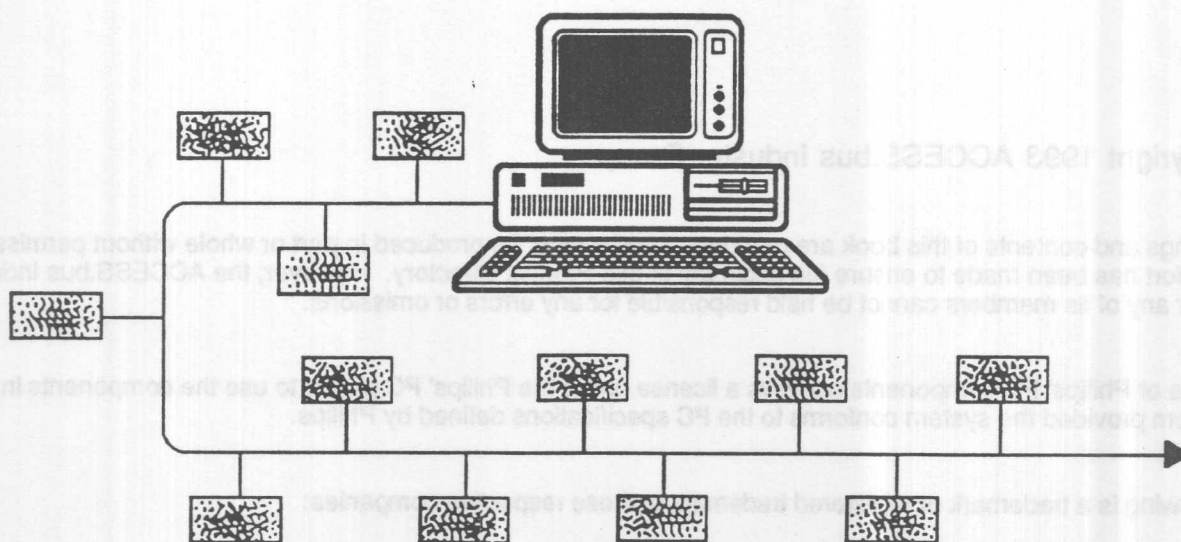


ACCESS.bus

Product Directory



April 1993

A102

0493/0M

Produced and Published by the:

ACCESS.bus Industry Group
370 Altair Way, Suite 215
Sunnyvale, California, 94086
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Fax: 408-991-3773

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Purchase of Philips' I²C components conveys a license under the Philips' I²C patent to use the components in the I²C-system provided the system conforms to the I²C specifications defined by Philips.

The following is a trademark or registered trademark of these respective companies:

ACCESS.bus Industry Group: ACCESS.bus
Autodesk: Autodesk ADI
Ceibo: DS-752, DB-51, LCP, MP-51
CH Products: RollerMouse
Digital Equipment Corporation: TURBOchannel, VAX, VMS
IBM: PC/AT, PS2, OS/2
ITAC Systems Inc.: Mouse-trak
Microchip: PIC
Microsoft Corporation: MS/DOS, MS WINDOWS
Molex: SEMMCONN
New Idea Electronic Company Ltd: LegendBall, BeetleMouse
Philips Semiconductors: I²C, I²C Serial Bus
Sun Microsystems: Sun
Summagraphics Corporation: Summagraphics, SummaSketch, Summagrid, Microgrid, DMP, LDS
UNIX System Laboratories: UNIX

A102-0393-00

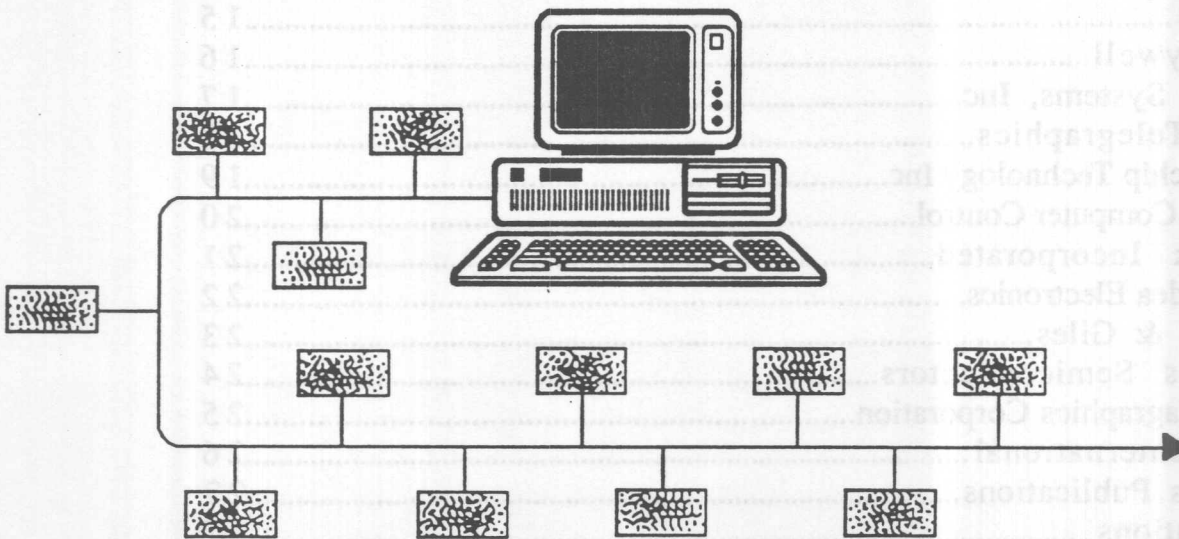
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Introduction

ACCESS.bus™ is an open, desktop connectivity standard that allows multiple accessory devices to be simultaneously connected to one computer port.

The first open standard of its type, this new technology is appropriate for a wide variety of computer systems. ACCESS.bus gives users great flexibility in the selection and use of peripheral devices. This open technology also provides both peripherals and systems vendors with a low-cost method of implementation.



ACCESS.bus supports the connection of multiple, low-speed devices including:

- Keyboards (PC, UNIX®, Fragments)
- Locators (Mouse, Joystick, Trackball)
- Pointers (Tablets, Digitizer)
- Modems
- Printers
- Image Scanners

Key Features

- Accessory devices can be swapped or rearranged easily. In most cases, users can unplug one device and plug in another without rebooting or powering down the system.

- More than 100 low-cost, off-the-shelf components based on the established I²C bus technology are available from several different IC suppliers for implementation with ACCESS.bus.
- ACCESS.bus is an open protocol. The protocol specifications will be provided free of charge to vendors for implementation. There are no licenses and no royalties for ACCESS.bus.

ACCESS.bus Benefits

	Systems Vendors	Software Vendors	Distributors & VARs	Accessories Vendors	End Users
Flexibility					
General-purpose I/O interconnect	X	X	X	X	X
Approximate Speed of 80 Kbits/sec	X				
Ease-of-Use					
Hot Plugging		X			X
Automatic Configuration					X
Cost Efficiency					
Off-the-shelf Parts	X	X	X	X	X
Low parts Count	X	X	X	X	
Standard Programmable devices		X		X	

General Features

- ACCESS.bus automatically assigns each device a unique address when it is connected.
- Automatic arbitration is based on assigned device priority.
- Devices are self-identifying and may contain up to 64 Kbytes of device-specific information in ROM, including:
 - device name
 - device type
 - vendor name
 - module name
 - serial number
 - language, dialect, character set
 - keymaps

- Information from a device's ROM can be used to customize a generic device driver. This eliminates the need, in most cases, for a custom device driver.

Physical Characteristics

- ACCESS.bus is based on the Philips I²C bus for serial communications used in standard 80C51 microcontrollers worldwide.
- The maximum data rate of ACCESS.bus, including overhead, is approximately 80 Kbits per second; the maximum clock rate of the underlying I²C bus is 100KHz.
- Up to 125 devices can be connected via a single desktop port. Devices may be chained to reduce cabling and associated costs.
- The maximum available power supplied to ACCESS.bus devices is 1 Amp @ 5 Volts.
- The maximum cable length can be up to 8 meters.
- A four-pin (power, ground, clock, and data transfer), shielded, rectangular connector is used on the ACCESS.bus cable.

Protocols

- The ACCESS.bus protocol is implemented in the ROM program of I²C based microcontrollers used in all ACCESS.bus devices and the host computer system.
- The basic ACCESS.bus protocol specifies device powerup, identification, addressing, and the message envelope for device-specific reports and control information.
- The keyboard protocol defines standard messages for reporting keystrokes and controlling keyboard peripherals.
- The locator protocol, which supports a variety of locator devices, defines standard messages for reporting locator movement and the key switch activations needed for mice, tablets, and other positioning devices.
- The text device protocol defines standard messages for reporting character text to and from devices like modems and printers.

ACCESS.bus Product Summary

	Company	Product	Status as of 3/93	Contact
1	AMP, Inc	Connectors	Available	Frank Pertschi Tel: 717-780-4994 Fax: 717-780-6735
2	Ceibo, Ltd (Israel)	I ² C/A.b Analyzer	Development	Victor Weiman Tel: 972-52-555-387 Fax: 972-52-553-297
3	CH Products	RollerMouse Trackball	Available	Rex Carroll Tel: 619-598-2518 Fax: 619-598-2524
4	Computer Access Technology	A.b-125I - PC/AT adapter board A.b-DEV-KIT - development kit A.b accessories	Available Available Available	Dan Wilnai Tel: 408-732-8910 Fax: 408-730-1675
5	Digital Equipment Corporation	MAXine personal workstation	Available	Paul Nelson Tel: 508-635-8288 Fax: 508-635-8724
6	Discrete Time Systems	Serial & Parallel port converters	Development	Robert Scott Tel: 603-883-3872 Fax: 603-882-7687
7	Fluke	I ² C/A.b Analyzer	Prototype	Mark Mays Tel: 206-347-6100 Fax: 206-356-5116
8	Honeywell KB Div.	PC101 A.b keyboard A.b mouse	Available Available	Nathan Saunders Tel: 915-543-5134 Fax: 915-543-5126
9	ITAC Systems Inc.	A.b Industrial Trackball	Available	Don Bynum Tel: 214-494-3073 Fax: 214-494-4159
10	LCS Telegraphics	A.b mouse software driver	Available	Robert Dezmelyk Tel: 617-225-7970 Fax: 617-225-7969
11	Logitech, Inc.	A.b mouse (DEC version) A.b mouse	Available Development	Denis Pavillard Tel: 510-713-4474 Fax: 510-796-8058
12	Mechatronics/Fujikura	A.b cables Expansion box	Available Development	Steve Carlson Tel: 206-232-4800 Fax: 206-236-5480
13	Microchip Technology Inc.	EEPROMs with I ² C interface Microcontrollers with A.b interface	Available Development	Richard J. Fisher Tel: 602-786-7291 Fax: 602-786-7277
14	Micro Computer Control	I ² C/A.b Analyzer	Available	Ed Thompson Tel: 609-466-1751 Fax: 609-466-4116

ACCESS.bus Product Summary (cont'd)

	Company	Product	Status as of 3/93	Contact
15	Molex, Inc.	Connectors	Available	Joe Dambach Tel: 708-969-4550 Fax: 708-969-1352
16	New Idea Electronic (Taiwan)	A.b Mouse	Prototype	Abraham Cheng Tel: 886-2-704-1333 Fax: 886-2-704-6034
17	Nexus Applied Research	Input devices for the disabled	Development	Mark Rosen Tel: 916-885-0262 Fax: 916-889-0203
18	Penny & Giles (England)	Industrial A.b trackballs Industrial A.b digital joystick	Available Available	Derek Higbee Tel: 44-202-481-751 Fax: 44-202-499-279
19	Philips Semiconductors	Microcontrollers with A.b interface	Available	Kevin Gardner Tel: 408-991-3445 Fax: 408-991-3773
20	Summagraphics	A.b digitizing tablet	Prototype	George Hesse Tel: 203-881-5430 Fax: 203-881-5367
21	Sun International	A.b cables & expansion box	Available	Barbara Onstot Tel: 214-495-0112 Fax: 214-530-5603
22	Sun Microsystems	SBus A.b Controller board	Development	Andy MacRae Tel: 415-336-4859 Fax: 415-336-0643
23	Welch Allyn	Bar-code reader	Development	Mark McCarthy Tel: 315-685-4100 Fax: 315-685-3172

Product Category Cross Reference

Adapter cards.....	Page 12
Cables, Connectors.....	Pages 12, 14, 21, 26
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Joysticks.....	Page 23
Keyboards.....	Page 16
Microcontrollers.....	Page 19, 24
Mouse.....	Pages 22
Port Interfaces.....	Page 14
Power Supplies.....	Page 14
Scanners & Writing Tablets.....	Pages 25
Software & Device Drivers.....	Pages 18
Trackballs.....	Pages 11, 17, 22, 23
Workstations.....	Page 13

Products & Services Ceibo

Product Description

ACCESS.Bus Link - The ACCESS.bus Link System is a development tool used to monitor the function of ACCESS.bus and PC Bus. It includes all the hardware elements needed to connect it to and operate it in a PC slot or across an RS-232 interface. The RS-232 mode permits the use of ACCESS.bus link with computers which do not have available PC slots, such as laptops, etc. The software included provides PC support and standard message protocol through the RS-232 interface. The ACCESS.bus Link System has the following applications:

- Protocol Analyzer - displays bus events, analyzes bus messages and the ACCESS.bus protocol.
- Troubleshooter - detects and describes fault operations.
- Master System - acts as a Master for peripheral designs and allows macro programming.
- Listener System - records bus events, displays and analyzes bus states and detects format errors.

Other Products

Ceibo offers a complete line of development tools for ACCESS.bus and I²C designers.

DS-51..... Microprocessor Development System - a real-time in-circuit emulator dedicated to all the 80C51 microcontrollers and derivatives. The emulator features trace memory, source level debugger, conditional breakpoints, performance analyzer and many other features.

DS-752... Emulator - a small development tool dedicated to the Philips/Sigmetics 8xC751/8xC752 microcontrollers, with debugger for Assembler and High-Level Languages.

MP-51.... Microcontroller Programmer - programs all the 80C51 derivative microcontrollers in all the available packages. The system also programs PLDs and EPROMs.

DB-51..... Development Board - a board used for evaluation and prototyping that accepts most of the 80C51 derivative microcontrollers. The software includes most of the functions provided with an in-circuit emulator.

Company Background

Ceibo is a manufacturer of development tools. The company was founded in 1988 and has been shipping products since early 1990. Ceibo has four main locations. Engineering and manufacturing facilities are located in Israel. The USA and European facilities provide marketing and technical support for their local regions.

Availability, Pricing, & Ordering Information

Available: March 1993

Order: CEIBO-ABL

Suggested Resale: \$490.00

Contact:

USA

Ceibo U.S.A.
1 Ballard Terrace
Lexington, MA 02173
Tel: (617) 863-9927
Fax: (617) 863-9649
Contact: A. Schachter

Germany

Ceibo Deutschland
Rheinstrasse 32
6100 Darmstadt
Tel: 06151/9932-0
Fax: 06151/993299
Contact: M. Kimron

Israel

Ceibo Israel
P. O. Box 2106
Herzlia 46120
Tel: 972-52-555-387
Fax: 972-52-553-297
Contact: V. Waiman

Spain

Ceibo Espana
Calle Josue Lillo 41
Madrid 28018
Tel: 91-4778995
Fax: 91-4779075
Contact: S. Visclner

CH Products

Product Description

RollerMouse™ is an industrial grade desk-top trackball. Enclosed in a high-impact plastic housing, the contoured design has four ergonomically placed buttons surrounding a 2.25" precision phenolic ball. Long life, no drift and a smooth running surface are guaranteed by the opto-mechanical design, stainless steel shafts and five-point ball bearing support. The RollerMouse is FCC approved and comes complete with a shielded cable assembly which plugs directly into any ACCESS.bus port using a standard ACCESS.bus connector. The CH Products RollerMouse Trackball provides:

- Highest Resolution Trackball Available
- Improved Speed and Accuracy
- Simple-to-Install, Easy-to-Use
- Compatibility Guaranteed

The RollerMouse features a one-year replacement warranty. Service and support is available directly from CH Products. Standard features include:

- Reliable, non-contacting encoders
- Four ergonomically placed buttons
- Variable resolution
- Compact, low-profile design
- Click and click-lock inputs
- Zero drift
- Standard ACCESS.bus connector
- Left or Right handed operating modes

Other Products

Panel mount and desktop trackballs are available for all IBM PC and compatibles, Apple, Sun and NeXT computers. CH Products also manufactures a complete line of industrial grade joysticks for the OEM..

Company Background

CH products, a 15 year old company, is the largest manufacturer of American made pointing devices and positioning controls which are distributed worldwide.

Availability, Pricing, & Ordering Information

The ACCESS.bus version will be available for deliveries in March, 1993. The ACCESS.bus RollerMouse model number 400-521 lists for \$179.00 with quantity discounts available. Dealer pricing is available for order quantities of 24 or more units.

Contact

Rex Carroll
Telephone: 619-598-2518
Fax: 619-598-2524

CH Products
970 Park Center Drive
Vista, California 92083

Computer Access Technology Corporation

Product Description

PC/AT Adapter Board (A.b-125I):

The A.b-125I is a PC/AT adapter board that serves as an ACCESS.bus master providing connectivity for desktop connectivity applications, as well as instrumentation and control applications. The board, based on the Philips 8XC654 microcontroller with I²C interface, is supported by an extensive software package including on-board microcode to control the operation of physical ACCESS.bus devices, and an ACCESS.bus Manager program that runs as a TSR under the MS-DOS operating system and routes control and applications messages between the physical devices and their software drivers. A windows 3.1 version of the software is also available.

The A.b-125I board includes an 8kx8-bit SRAM buffer memory. The unit controls a standard ACCESS.bus network supporting up to 125 devices at distances up to 25 feet or 250 feet with an optional external ACCESS.bus buffer.

Development Kit (A.b-DEV-KIT):

To ease ACCESS.bus product development, CATC offers a PC/AT-based ACCESS.bus development support package. The A.b-DEV-KIT contains the A.b-125I PC/AT ACCESS.bus controller board, an ACCESS.bus mouse, expansion box and cables, and an 87C751 microcontroller. The development kit also includes a comprehensive software package and user's manual. The software package includes on-board microcode, an ACCESS.bus Manager that runs as a TSR under DOS, and an ACCESS.bus Monitor and Control program. In addition, the A.b-DEV-KIT software includes source code of ACCESS.bus generic software drivers for the host and ACCESS.bus device software modules.

ACCESS.bus Accessories:

Computer Access Technology Corporation's (CATC) ACCESS.bus accessories include cables and expansion boxes.

Other Products

CATC's ACCESS.bus products include controller boards for the PC and workstations, software device drivers, development tools and accessories. CATC also provides ACCESS.bus consulting services.

Company Background

Computer Access Technology Corporation (CATC) develops, manufactures and markets ACCESS.bus products and services. CATC's recently announced products include a PC/AT ACCESS.bus Development Kit, and various ACCESS.bus accessories.

Availability, Pricing, & Ordering Information

All three products are available now. Order from Computer Access Technology:

PC/AT Adapter Board: A.b-125I	Price: \$86 (at quantity 1,000)
Development Kit: A.b-DEV-KIT	Price: \$1,500 each
A.b Accessories	Price: Starting at \$6.30

Contact

Dan Wilnai
Telephone: 408-732-8910
Fax: 408-730-1675

Computer Access Technology Corporation
949 Hillsboro Avenue
Sunnyvale, CA 94087

Digital Equipment Corporation

Product Description

The ACCESS.bus input device interface is implemented in the UNIX workstation products DECstation 5000 models 20, 25, and 33. This is an entry-level system which runs a full range of applications from popular MS-DOS software (with SoftPC) to thousands of powerful ULTRIX applications. Memory is expandable up to 40 MB, and the Personal DECstation 5000 accepts two internal drives and offers two TURBOchannel slots. It supports 20, 25, and 33 MHz versions of the R3000A chipset for MIPS.

Available hardware includes R3000A CPU and R3010 FPU on a removable daughter card, integral 1024 x 768 eight-plane Super VGA color graphics, Synchronous/Asynchronous serial port, Thick wire Ethernet interface, Open SCSI port, Audio capability with built-in speaker for multimedia use, cavity for 3.5 inch FDI 2.8 MB floppy disk, cavity for 3.5 inch SCSI disk up to 426 MB, 8 MB memory minimum, 17 inch grayscale monitor, and 16 inch color monitor.

The ACCESS.bus input devices included with the DECstation 5000 are the LK501 keyboard and the VSXXX-GB mouse. ACCESS.bus devices offered by other companies will also work on the input port.

ULTRIX software is offered in various license arrangements.

Company Background

Digital Equipment Corporation is a leading worldwide manufacturer of computer systems, software, networks, and applications for a wide range of computing needs. Its products cover a range of operating systems such as Digital's own VAX, VMS, UNIX, and MS-DOS.

Availability, Pricing, & Ordering Information

DECstation 5000 pricing starts at \$3995 and is available now.
For full information contact the local Digital office or call 800-DIGITAL.

Contact

For related ACCESS.bus information contact:

Paul E. Nelson
Digital Equipment Corporation
Mail Stop # DSG2-2/E2
6 Technology Park Drive
Westford, CA 01886
Telephone: 508-635-8288
Fax: 508-635-8724

Discrete Time Systems

Product Description

- DTAB101** **Parallel Port:** Bidirectional, high speed parallel port, allowing an ACCESS.bus connection to printers, plotters, and other peripherals using a standard 8-bit parallel interface.
- DTAB101S** **Parallel Port for DECstation 5000:** Provides the same features as the DTAB101, but is designed for the DECstation 5000. Included with the DTAB101S is the necessary ULTRIX device driver.
- DTAB201** **Serial Port:** A serial port with full-duplex, bi-directional, RS-232C DTE compatible, 25-pin, 4k internal buffer, optional XON/XOFF flow control, optional CTS/RTS flow control, full modem support. The DTAB201 allows connection to terminals, printers, and other devices using a standard RS-232 serial interface.
- DTAB201S** **Serial Port for DECstation 5000:** The DECstation 5000 version of the DTAB201, which includes the necessary ULTRIX device driver.
- DTAB21** **Power Supply:** This Power supply allows the DTAB101 and DTAB201 to operate in "stand-alone" mode, with out connection to an ACCESS.bus system.
- DTAB31** **Quad Connector:** The four ports on this box allow four ACCESS.bus cables to be connected together, reducing cable clutter.
- DTAB41** **Power Booster:** Provides the ACCESS.bus with an additional 1000ma of power.
- DTAB51** **ACCESS.bus Adaptor for DECstation 5000:** This adaptor, which includes an ULTRIX device driver, allows connection of standard ACCESS.bus products to the DECstation 5000 computer line.

Note: All DTSC ACCESS.bus Devices are capable of ACCESS.bus-Host operation allowing direct connection to other ACCESS.bus devices without the need of a host computer.

Company Background

Discrete Time Systems Corporation is a computer systems consulting firm specializing in SCSI, SCSI/CAM, and communications hardware and device drivers.

Availability, Pricing, & Ordering Information

Order No.	List Price	Availability
DTAB101	\$99	March, 1993
DTAB101S	\$149	March, 1993
DTAB201	\$99	April, 1993
DTAB201S	\$159	April, 1993

Quantity prices are substantially less.

Contact

Roger Morris
Discrete Time Systems Corporation
141 Canal Street, Mill #4
Nashua, NH 03060

Telephone: 800-800-DTSC
603-883-DTSC
Fax: 603-882-7687

Fluke

Product Description

The I²C and ACCESS.bus support package PF8681 is to be used in combination with the PM3580 family logic analyzer. It provides facilities for analyzing and troubleshooting data streams on the I²C-bus and ACCESS.bus. The adapter, together with the Dual Analysis Per Pin architecture of the logic analyzer allows simultaneous measurements in the timing and state domain without any reconnecting or multiple probing of the I²C signals. This single probing methodology also avoids additional DC and AC loading of the I²C Signal lines.

Captured data from either bus can be displayed on the logic analyzer screen in various formats (e.g. hex, binary, etc.) The PF8681 includes a disassembler for I²C-bus and for the ACCESS.bus. The I²C disassembler supports all present day features of the I²C-bus system, including 10-bit addressing and "fast-mode". The ACCESS.bus disassembler supports the BASE-protocol specification as mentioned in the ACCESS.bus specifications version 2.0.

The adapter automatically detects the Start and Stop conditions generated by the I²C-bus, or ACCESS.bus devices, and the I²C-bus signals SCL and SDA are used to generate the ADDRESS, DATA and the control-signals RWN and ACK. The adapter also stores 9 bits of serial data, 9 SCL clocks (including the acknowledge bit), and after determining whether these bits are ADDRESS or DATA, they are clocked into the Logic Analyzer acquisition memory in parallel.

The Logic Analyzer will then display the ADDRESS, the mode of operation READ or WRITE, and the transferred DATA. In case of the ACCESS.bus the Logic Analyzer displays the DESTination-, SouRce address, the Protocol Flag, the number of data bytes and the transferred DATA. The ASCII-value of the data byte is also displayed if the data is related to a Protocol Message.

Other Products

Logic analyzers from Fluke support a wide variety of busses and microprocessors including: the MCS-51, MCS-96, 808x, 80x86, i960 from Intel; the 68xx, 680x0, 683xx, 56000 from Motorola; I²C microcontrollers from Philips; the VME bus, SCSI bus, IEEE-488 bus, RS232/449, PC/AT bus, JTAG 1149.1 (boundary scan) and many others.

Company Background

Based in Everett, WA. Fluke has been providing test and measurement solutions to the electronics industry for over 40 years. In addition to logic analyzers Fluke offers other test and measurement equipment including: digital multimeters, digital troubleshooters, oscilloscopes, calibrators, data acquisition, counters, signal generators, and power supplies.

Availability, Pricing, & Ordering Information

PF8681 available now, at \$1790. PM3580 Family Logic Analyzers from \$4,695 to \$10,950 (32-96 channels).

Contact

Fluke
P.O. Box 9090
Everett, WA 98206-9090
800-44-FLUKE

Honeywell

Product Description

101 key IBM enhanced key array keyboard with an ACCESS.bus interface.

Other Products

Honeywell Keyboard Division manufactures several versions of keyboard and pointing devices for a variety of platforms.

Company Background

Honeywell is one of the world's largest electronics supplier. The Honeywell Keyboard Division is the industry leading keyboard manufacturer.

Availability, Pricing, & Ordering Information

Available in the 2nd quarter 1993 (estimated).
Call for pricing and ordering information.

Contact

Rich Heidenreich
Honeywell Keyboard Division
4171 North Mesa
El Paso, TX 79902
Telephone: 915-543-5507
Fax: 915-543-5126

ITAC Systems, Inc.

Product Description

Recognizing the need for a precision input device engineered for harsh environments, ITAC Systems has developed an industrial model of its Mouse-trak™ trackball.

- In use and available now
- Engineered for Harsh Environments
- User-defined Input Keys
- Click and Drag Mode
- Instant Cursor Speed Control Button

Harsh environments require rugged compact systems where desktop space is at a premium, if available at all. ITAC Systems has met this requirement with ruggedized stationary input. The new Industrial Mouse-trak™ is constructed of 10% glass-filled Xenoy® thermoplastic alloy. This construction has proven strong enough for a truck to drive over it with no ill effects. The cast phenolic ball is manufactured by a billiard ball manufacturer for smoothness and hardness with tolerances of $\pm .005"$ and ridges on hardened stainless steel shafts and ball bearings.

The industrial Mouse-trak™ has the same ergonomic design as the commercial model Mouse-trak™ with all the same features: user-definable keys, instant cursor speed control, single connection to the host computer. In addition to the case design, a Mylar® ring has been added around the ball opening for added protection from dust and debris. The PCB has a conformal coating for water resistance in high moisture areas. The cable is shielded to offer additional strength and reduced EMI. Mouse-trak™ has been tested, approved, and put into use in a variety of applications, including the U.S. military.

Company Background

ITAC Systems manufactures a full-line of trackball and other pointing devices. ITAC is located in Garland, Texas. Mouse-trak™ is currently distributed throughout the United States, Europe, and Australia.

Availability, Pricing, & Ordering Information

Available Now; \$179.00 U.S. for PC and Macintosh's; \$199.00 U.S. for workstations; \$295.00 for industrial models.

Contact

Yvonne Mokofsky
ITAC Systems, Inc.
3121 Benton Street
Garland, TX 75042
Telephone: 214-494-3073
800-533-4822
Fax: 214-494-4159
Email: yvonne@moustrak.com

LCS/Telegraphics

Product Description

LCS/Telegraphics' ABMOUSE.COM DOS mouse drivers for the ACCESS.bus provide a fully compatible implementation of the Microsoft standard DOS mouse driver specification version 8.2 for ACCESS.bus pointing devices. The drivers allow applications written for a standard PC mouse to operate with ACCESS.bus mice or trackballs.

Other Products

LCS/Telegraphics offers a full line of pointing device drivers for Windows 3.1, Autodesk ADI, OS/2, and Windows NT, including Wintab compatible drivers for Windows which support multiple pointing devices, and compatibility and pointing device controller engineering and test services.

Company Background

LCS/Telegraphics is the leading supplier of software for pointing devices worldwide. We provide our customers with the device drivers, firmware, and test and engineering services required to ensure that their pointing devices are fully compatible with PC industry standards. Our customers include the largest manufacturers of digitizing tablets, many major manufacturers of trackballs and mice, and leading computer manufacturers. Millions of users worldwide depend on our mouse driver software.

LCS/Telegraphics authored and maintains the Wintab specification, an industry standard API for advanced pointing devices, and is a member of the ACCESS.bus Industry Group steering committee.

Availability

ABMOUSE.COM is available now. Additional ACCESS.bus drivers will be available from LCS/Telegraphics in the second quarter of 1993.

Pricing & Ordering Information

All of LCS's products are provided on a licensed basis to OEM customers. Please contact the company for further information.

Contact

Robert Dezmelyk, President
150 Rogers Street
Cambridge, MA 02142
Telephone: 617-225-7970
Fax: 617-225-7969

Microchip Technology Inc.

Product Description

I²C Bus Serial EEPROMs

Device	Org	Voltage	WR Speed	Clock
24LC01B	1K - 128 x 8	2.5 - 5.5	10ms	100/400KHz
24LC02B	2K - 256 x 8	2.5 - 5.5	10ms	100/400KHz
24LC04B	4K - 512 x 8	2.5 - 5.5	10ms	100/400KHz
24LC08B	8K - 1K x 8	2.5 - 5.5	10ms	100/400KHz
24LC16B	16K - 2K x 8	2.5 - 5.5	10ms	100/400KHz
24AA01	1K - 128 x 8	1.8 - 5.5	10ms	100KHz
24AA02	2K - 256 x 8	1.8 - 5.5	10ms	100KHz
24AA04	4K - 512 x 8	1.8 - 5.5	10ms	100KHz
24AA08	8K - 1K x 8	1.8 - 5.5	10ms	100KHz
24AA016	16K - 2K x 8	1.8 - 5.5	10ms	100KHz
85C72	1K - 128 x 8	4.5 - 5.5	1ms/Byte	100KHz
85C82	2K - 256 x 8	4.5 - 5.5	1ms/Byte	100KHz
85C92	4K - 512 x 8	4.5 - 5.5	1ms/Byte	100KHz
24C01A	1K - 128 x 8	4.5 - 5.5	1ms/Byte	100KHz
24C02A	2K - 256 x 8	4.5 - 5.5	1ms/Byte	100KHz
24C04A	4K - 512 x 8	4.5 - 5.5	1ms/Byte	100KHz

Other Products

Microchip is currently developing devices dedicated to the ACCESS.bus market including PICTM microcontrollers (I²C Interface in Firmware). PIC microcontrollers provide user programmable I²C interface in either master or slave roles.

Company Background

Microchip Technology Inc. manufactures and markets advanced Serial EEPROM's, user-programmable RISC microcontrollers, and related non-volatile memory products to meet growing requirements for high performance, yet economical embedded control capability in a variety of cost and space-sensitive applications. The company has delivered over 75 million Serial EEPROMs and 30 million CMOS PIC microcontrollers, with industry-leading quality, features, and performance. Microchip has a history of innovation and a unique corporate culture dedicated to continuous improvement.

Availability, Pricing, & Ordering Information

Available now. Pricing varies by product package, temperature grade: Contact local Microchip sales office or factory. Ordering information: Devices above are available in commercial and industrial temperature ranges, standard or tape-and-reel, and packaged in 8-lead plastic DIP, 150 mil/8-lead SOIC and 150 mil/14-lead SOIC.

Contact

Richard J. Fisher
Memory Applications Manager
602-786-7291

Microchip Technology Inc.
2355 W. Chandler Blvd.
Chandler, AZ 85224-6199

Micro Computer Control

Product Description

Micro Computer Control Corporation's I²C and ACCESS.bus Monitor includes the following features:

- I²C and ACCESS.bus Compatible Line Monitor
- Monitor ALL or SELECTED Bus Addresses
- Forward/Backward Trace
- External Trigger Input
- 16K Byte Trace Buffer
- View Message or Byte Sequence
- Hand-held Portable Unit
- Easy-to-Read Alphanumeric Display
- RS-232 Serial Interface Support

Other Products

A complete line of 8051-based I²C development tools including Assemblers, C Compilers and Simulators.

Company Background

Micro Computer Control Corporation (MCC) is a software development tools developer founded in 1978 and incorporated in 1984 in the State of New Jersey, USA. MCC is a privately-held corporation.

Since 1982 MCC has specialized in developing software development tools for industrial and consumer electronic applications based on single-chip or embedded microcontrollers. These tools include products such as real-time executive kernels, C cross-compilers, assemblers, debuggers, and emulators.

Availability, Pricing, & Ordering Information

Available January, 1993.

U. S. Suggested List Price (Qty 1) \$495.00

Part Number: MIIC-101

Contact

Ed Thompson
Micro Computer Control
PO Box 275
Hopewell, New Jersey 08525 USA
Telephone: 609-466-1751
Fax: 609-466-4116

Molex Incorporated

Product Description

Full Shield Receptacle (71565 Series)

- Thru Hole or SMT
- Maximum EMI/RFI Shielding
- Panel Grounding with Panel Stops
- Right Angle Mount
- PCB Shield Ground (PTH or SMT)

Partial Shield Receptacle (71565 Series)

- Thru Hole or SMT
- Right Angle Mount
- PCB Shield Ground (PTH or SMT)

Shielding Plug (71564 Series)

- Dual Snap Latches
- Optional Cable Shield Grounding Ferrule
- Over Moldable
- Clear or Smoke Grey Housing

The above ACCESS.bus connectors are standard 4 circuit SEMCONN devices including a vertical mount receptacle. Refer to Section O of the Molex full line catalog. An implementers hand book is available from Molex which includes all ACCESS.bus SEMCONN product drawings, product specifications and application tooling.

Company & Product Background

Molex Incorporated is a Fortune 500 company that designs and manufactures a broad line of electronic connectors, flat cables, switches and associated application tooling. Based in Lisle, Illinois, USA, the company's worldwide operations include 48 manufacturing facilities in 20 countries.

Availability, Pricing, & Ordering Information

All products available NOW.

When ordering and requesting information on ACCESS.bus, please specify "SEMCONN".

Contact

Joe Dambach
Molex Incorporated
2222 Wellington Court
Lisle, Ill. 60532-1682
Telephone: 708-969-4550
Fax: 708-969-1352

New Idea Electronics

Product Description

BeetleMouse and LegendBall Trackball from New Idea:

The BeetleMouse and LegendBall Trackball have many new ideas incorporated into them. They are good-looking, ergonomically-shaped, available in a variety of colors with larger and stream-lined buttons. The LegendBall has an innovative, raised, round dot for quick locating by your palm.

Contact us for more information today. You'll be glad you did.

Other products

The Beetle Mouse and LegendBall Trackball are available for a wide range of personal computer models, including: IBM Serial and PS/2, Apple Macintosh ADB, Commodore Amiga, Atari, NEC, Microsoft In-Port Bus.

Company Background

New Idea Electronic was established in 1987, specializing in the design and manufacture of mouse and trackball products. The satisfied buyers of the Beetle Mouse include IBM, Japan; CompUSA, USA; Intel, Germany; Fox Software, France; Olivetti, UK and many more.

Availability, Pricing, & Ordering Information

Available in March, 1993.

Order Models: BA-2 2-button Beetle
BA-3 3-button Beetle
LA-3 3-button LegendBall trackball

Pricing: around \$25 each. Contact New Idea for quantity pricing.

Contact

Abraham Cheng, Executive Manager
New Idea Electronic Co., Ltd.
14F-1, No. 237 Sec. 1 Fu-Hsing S. Road
Taipei, Taiwan
Telephone: 886-2-704-1333
Fax: 886-2-704-6034

Penny & Giles

Product Description

Panel mounted, Desktop, and Facia products of the following types:

- 1.5", 2.0", 2.5", and 3.0" trackballs
- 1, 2, and 3 Axis Digital Joysticks
- Waterproof 2.0 Trackball in the above styles

Company Background

Penny & Giles Computer Products manufactures a large range of industrial pointing devices for use in all areas where reliability and custom designs are important.

Availability, Pricing, & Ordering Information

January, 1993.

Prices available upon request.

Delivery 4-6 weeks after receipt of order.

Contact

Derek Higbee
Penny & Giles Computer Products
1 Airfield Way
Christchurch, Dorset, BH23 3TE
England
Telephone: 44-202-481-751
Fax: 44-202-499-279

Philips Semiconductors

Product Description

80C51 Microcontroller Derivatives with an embedded I²C Interface

Part Number (ROMless)	OTP & EPROM	Memory ROM	RAM	Counter Timers	I/O Ports	External Interrupts	Comments & Special Features
8XC751	•	2K	64	1 (16-bit)	2-3/8	2	Low-Cost 24-pin Skinny DIP
87C752	•	2K	64	1 (16-bit)	2-5/8	2	5 Channel 8-bit A/D, PWM Output
8XCL410		4K	128	2	4	10	Low Voltage (1.8V to 6V), Low Power
83CL580		6K	256	3 + Watchdog	5	10	4 Channel 8-bit A/D, PWM Output,
8XC652	•	8K	256	2	4	2	80C51 Compatible with 2x Memory
8XC552	•	8K	256	3 + Watchdog	6	2	8 Channel 10-bit A/D, 2 PWM Outputs, Capture/Compare Timer
8XC654	•	16K	256	2	4	2	80C51 Compatible with 4x Memory, 256 RAM
83CE654		16K	256	2	4	2	83C654 with Reduced
83CL781		16K	256	3	4	10	Low Voltage (1.8V to 6V), Low Power
87C524	•	16K	512	3 + Watchdog	4	2	512 RAM
8XC528	•	32K	512	3 + Watchdog	4	2	Large Memory for High Level Languages

Other Products

Philips Semiconductors manufactures a complete line of 8-bit microcontrollers based on the 80C51 architecture. The above list is only a portion of this product line. In addition, Philips manufactures over 100 I²C based integrated circuits.

Company Background

Philips Semiconductors is the world's tenth largest semiconductor supplier and the largest in Europe. The company's wafer fabs and assembly facilities located throughout the world produce more than 25 million integrated circuits and discrete semiconductors each day. Key markets are consumer electronics, telecommunications, computers, and automotive. Philips Semiconductors is supported by Philips Research Laboratories, one of the world's largest privately funded research organizations, with centers in five countries.

Availability, Pricing, & Ordering Information

Available now. Use the order numbers listed above.

Prices for the above derivatives of the 80C51 family start at around \$2.30 in quantity.

Distributed in North America by Almac, Anthem Electronics, Arrow/Schweber Electronics, Falcon Electronics, Gerber Electronics, Hamilton-Avnet Electronics, Marshall Industries, Wyle Labs EMG, and Zentronics Ltd.

Contact

Kevin Gardner
Philips Semiconductors
811 E. Arques Avenue
Sunnyvale, CA 94088-3409
Telephone: 408-991-3445
Fax: 408-991-3773

Summagraphics Corporation

Product Description

Summagraphics® SummaSketch® for ACCESS.bus compatible workstations. The SummaSketch is the latest generation of the best selling SummaSketch family and the overwhelming choice of computer graphics professionals. It comes with everything you need for fast and accurate digitizing, tracing, drawing, illustrating, cursor steering, and menu picking with your CAD or other graphics programs.

- The Industry Standard - Over one-half million have been sold; more than any other tablet. SummaSketch is the winner of many major editorial accolades.
- The Most Software Compatibility - SummaSketch is the most widely emulated format in the industry with over 400 DOS compatible software programs.
- Specifications - Up to 2540 lines per inch resolution; Standard 0.010" accuracy, and 1/2" proximity, allows you to trace documents up to 1/2" thick.
- Lifetime Limited Warranty - Lifetime on tablet, two-year warranty on accessories (US and Canada only)

The SummaSketch comes as a complete Package (with everything you need in the box):

- Choice of active areas - standard 11.7" x 11.7" and 12" x 18"
- Wedge-shape design - For comfortable desktop use
- Choice of transducers:
 - 4-button cursor with cross-hair sight for accurate digitizing and a 2-button stylus for drawing or illustrating
 - 16-button cursor is also available
- Interface cables (ACCESS.bus) and power supply
- Operator's Manual and Warranty Registration

Other Products

Summagraphics makes a complete line of peripherals including digitizers, plotters, large document scanners, and cutters for a variety of platforms including DOS, Windows, UNIX, and Apple Macintosh.

Company Background

Summagraphics Corporation, founded in 1972, is a leading international manufacturer of computer peripheral products used principally in computer graphics, computer-aided design and other advanced graphics applications. Brand names include SummaSketch, Summagrid™, and Microgrid®, digitizing tablets, the Houston Instrument DMPTM Series plotters and the Houston Instrument LDS™ 4000 Plus scanner.

Availability, Pricing, & Ordering Information

Available 2nd Quarter, 1993. Contact Summagraphics for Developer Pricing.

Contact

George Hesse
Summagraphics Corporation
60 Silvermine Road
Seymour, Connecticut 06483-3907

Telephone: 203-881-5430
800-729-7866
Fax: 203-881-5367

Sun International

Product Description

Sun International's ACCESS.bus products include an ACCESS.bus Expansion Box, Adapter, and Cable Assemblies. The Expansion Box will let you interconnect up to 5 ACCESS.bus devices per box. The Expansion Kit comes with an extension adapter, one 4 foot cable, and one 2 foot cable.

Other Products

Sun International manufactures a wide range of Cable Harnesses, Input Devices, Telecommunication Devices, and PCB Assemblies for the OEM and Consumer market.

Company Background

Sun International was established in 1985 to support worldwide OEM customers such as IBM, Digital Equipment Corporation, COMPAQ, Hewlett Packard, etc.

Availability, Pricing, & Ordering Information

All ACCESS.bus products are available now.
Contact Sun directly for detail pricing and availability information.

Contact

Sun International
Attention: Barbara Onstot
Technical Support: Stephen Kim
1000 E. Campbell Road Suite 110
Richardson, TX 75085
Telephone: 214-495-0112
Fax: 214-530-5603

Telephone: 203-881-6430
203-729-7558
Fax: 203-881-6367

George Harris
Summagraphics Corporation
60 Shuman Road
Seymour, Connecticut 06483-3507

ACCESS.bus Publications Available from the ACCESS.bus Industry Group

Title	Type	Pubs Order No
ACCESS.bus Specification	Specification (V2.0)	99-0002-154
Serial Bus Looks to Standardize..... (Computer Design)	Reprint (Sep, 1991)	98-8080-341
ACCESS.bus, an Open Desktop Bus (Digital Tech Journal)	Reprint (Fall, 1991)	98-8080-342
Issues in Desktop Connectivity (Computer Design Conf.)	Reprint (Jan, 1992)	98-8080-343
The Ultimate Desk ACCESSory (Circuit Cellar Ink)	Reprint (Aug/Sep, 1992)	98-8080-345
ACCESS.bus Product Directory	Product Catalog (29 pgs)	Call (A102)
ACCESS.bus Technical Overview	Technical Brief (20 pgs)	Call
ACCESS.bus Response Kit	First Level Response	Call

I²C Publications Available from Philips Semiconductors

Title	Type	Pubs Order No
1992 80C51 Derivatives (IC20)	Data Handbook	98-8080-390-01
I ² C Peripherals for Microcontrollers	Data Handbook	98-8080-574
Exploring I ² C (Embedded Systems Programming)	Reprint (Sept, 1991)	98-8080-576
Programming the I ² C Interface (Dr. Dobbs Journal)	Reprint (June, 1992)	98-8080-577
A Review of PC-based I ² C Tools	Application Brief (2 pgs)	Call
Using the 8XC751 MCU as an I ² C Bus Master	Application Note (AN422)	98-8080-610
Connecting a PC keyboard to the I ² C-bus	Application Note (AN434)	98-8080-632
The 83/87C751/752 in a Multi-master I ² C environment	Application Note (AN430)	98-8080-633
I ² C Bus & How to Use it	Datasheet/Brochure	98-8080-575
80C51 Family Overview	Brochure	98-8080-320
80C51 Line Card	Line Card	98-8080-550-06

Order any of these documents from the ACCESS.bus Industry Group via Telephone (408-991-3517) or FAX (408-991-3773) or contact your local Philips Semiconductors sales office, worldwide.

ACCESS.bus Industry Group

The ACCESS.bus Industry Group (ABIG) is an association of members interested in promoting ACCESS.bus as an industry standard for the desktop connectivity of computer peripherals. As an association, ABIG is intended to maintain the ACCESS.bus specification as a simple, easy-to-implement, stable technology in the spirit of its design and contribute to the technical longevity of the ACCESS.bus architecture.

ABIG is an open industry group and anyone who has an interest in ACCESS.bus can be an ABIG member. An ABIG member is defined as a company including its divisions and subsidiaries, an organization, or a public or private institution.

There are two basic types of membership; General and Voting. General membership is open to everyone and Voting Membership is restricted to only those members who are actively producing or developing a device or platform that incorporates the ACCESS.bus technology. ABIG Founding Members are the those voting members who joined to form ABIG. They have the same voting privileges. ABIG is governed by an elected Steering committee of seven voting members.

To become an ABIG member, telephone, fax, or write to the ACCESS.bus Industry Group at the address below:

ACCESS.bus Industry Group
370 Altair Way, Suite 215
Sunnyvale, California, 94086
Telephone: 408-991-3517
Fax: 408-991-3773

ACCESS.bus Industry Group Voting Members As of March, 1993

AMP, Inc.
Ceibo, Ltd.
CH Products
Computer Access Technology Corporation
Digital Equipment Corporation
Discrete Time Systems
Fluke
Honeywell Keyboard Division
Input Technologies
ITAC Systems, Inc.
Kensington Microware
LCS/Telegraphics
Lexmark
Logitech, Inc.
Mechatronics
Microchip
Micro Computer Control
Microsoft Corporation
Molex, Incorporated
Mouse Systems
New Idea Electronic Co., Ltd.
Nexus Applied Research
Penny & Giles Computer Products Ltd.
Philips Semiconductors
Robert Clemens & Associates
Summagraphics Corporation
Sun International, Inc.
Sun Microsystems
Welch Allyn, Inc.

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